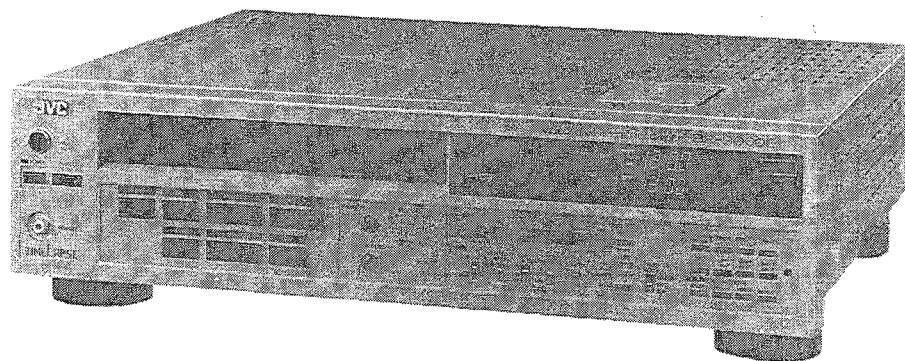


INSTRUCTIONS

JVC

BR-9060E

TIME LAPSE VIDEO CASSETTE RECORDER



Warning Notice FOR YOUR SAFETY (Australia)

1. Insert this plug only into effectively earthed three-pin power outlet.
2. If any doubt exists regarding the earthing, consult a qualified electrician.
3. Extension cord, if used, must be three-core correctly wired.

IMPORTANT (In the United Kingdom) Mains Supply (AC 240 V~) WARNING — THIS APPARATUS MUST BE EARTHED

The wires in this mains lead are coloured in accordance with the following code;

GREEN-and-YELLOW: EARTH
BLUE: NEUTRAL
BROWN: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows. The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the safety earth symbol \perp or coloured GREEN or GREEN-AND-YELLOW. The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or which is coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

POWER SYSTEM

Connection to the mains supply

This set operates on 220 to 240V~,50/60 Hz.

This unit is produced to comply with Directives 76/889/EEC, 82/499/EEC and 87/308/EEC.

WARNING:

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION

To prevent electric shock, do not open the cabinet. No user serviceable parts inside. Refer servicing to qualified service personnel.

Note: The rating plate and the safety caution are on the rear of the unit.

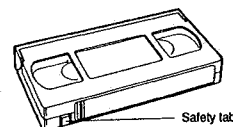
PRECAUTIONS

Handling and storage

- Avoid using the recorder under the following conditions:
 - extremely hot, cold or humid places.
 - dusty places.
 - near appliances generating strong magnetic fields,
 - places subject to vibrations, and
 - poorly ventilated places.
- Be careful of moisture condensation. Avoid using the recorder immediately after moving from a cold place to a warm place. The water vapor in warm air will condense on the still-cold video head drum and tape guides and may cause damage to the tape and the recorder.
- Handle the recorder carefully.
 - Do not block the ventilation openings.
 - Do not place anything heavy on the recorder.
 - Do not place anything which might spill and cause trouble on the top cover of the recorder.
 - Use in horizontal (flat) position only.
- In case of transportation.
 - Avoid violent shocks to the recorder during packing and transportation.
 - Before packing, be sure to remove the cassette from the recorder.

Video cassettes

- Video cassettes are equipped with a safety tab to prevent accidental erasure. When the tab is removed, recording cannot be performed.



- Avoid exposing the cassette to direct sunlight. Keep them away from heaters.
- Avoid extreme humidity, violent vibrations or shocks, strong magnetic fields (near a motor, broadcasting antenna, wireless transmitter, transformer or magnet) and dusty places.
- Place the cassettes in cassette cases and position vertically.
- Do not use longer tapes than the E-180 Video Cassette with the BR-9060E.

Moisture condensation

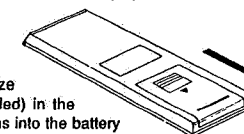
- If you pour a cold liquid into a glass, water vapor in the air will condense on the surface of the glass. This is called moisture condensation.
- Moisture condensation on the head drum, one of the most crucial parts of the video recorder, will cause damage to the tape.
- Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions.

Operation

- When a cassette is loaded, the power is switched on and, if the safety tab has been removed, playback begins automatically.
- The cassette can be unloaded even when the power is off. Pressing the EJECT button turns the power on and, after ejection of the cassette, shuts it off automatically in this case.
- As long as the TIMER button is engaged with the TIMER indicator lit, the POWER and EJECT buttons have no effect and unloading of a cassette is not possible. If a cassette has not yet been inserted, simply insert a cassette; the power will be switched on to load the cassette properly and, after completion of automatic loading, the Timer Recording Standby mode will be engaged with power off.
- The batteries installed in the top panel must be replaced once a year.

Installing the batteries

1. Slide the battery compartment cover on the rear of the unit in the direction of the arrow (►).



2. Insert 2 "AA"-size batteries (provided) in the correct directions into the battery compartment.
3. Replace the cover.

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AVAILABLE RECORDING OPTIONS ACCORDING TO THE SETTING OF THE REC MODE BUTTON

REC MODE switch setting	Recording time					Recording Interval	Audio recording	Playback Interval
	E-30	E-60	E-90	E-120	E-180			
VHS/SP	30 min	1 hour	1 h 30 min	2 hours	3 hours	—	Yes	—
VHS/LP	1 hour	2 hours	3 hours	4 hours	6 hours	—		—
TL/24	4 h 30 min	9 hours	12 hours	18 hours	24 hours	0.16 sec	No	0.32 sec
TL/72	12 hours	24 hours	36 hours	54 hours	72 hours	0.48 sec		0.96 sec
TL/120	20 hours	40 hours	60 hours	90 hours	120 hours	0.8 sec		1.6 sec
TL/240	40 hours	80 hours	120 hours	180 hours	240 hours	1.6 sec		3.2 sec
TL/480	80 hours	160 hours	240 hours	360 hours	480 hours	3.2 sec		6.4 sec
TL/960	160 hours	320 hours	480 hours	720 hours	960 hours	6.4 sec		12.8 sec

FEATURES

RECORDING FUNCTIONS

1 MAXIMUM RECORDING TIME OF 960* HOURS

In the time-lapse mode, recording times of 24, 72, 120, 240, 480 and 960 hours can be selected with an E-180 cassette. Recording times of 3 hours and 6 hours are possible in the SP (Standard Play) and LP (Long Play) modes. This choice allows a recording time suitable for any purpose to be selected, whether you're out for a few minutes or several days at a time.

* Factory set to 480-hour mode.

Set DIP switch 7 on the rear panel to OFF.

2 ALARM RECORDING FUNCTION

When an alarm signal is input, the BR-9060E automatically switches from the time-lapse mode to the SP or LP mode to record the incident in greater detail, so that it can be seen clearly in playback. The alarm recording time is selectable between 15 sec, 180 sec, to the tape end, and while alarm pulses are being input, using a DIP switch on the rear panel.

3 TIMER RECORDING FUNCTION

The BR-9060E incorporates a 14-day/8-event timer that can be set to record for a predetermined time each day, each weekday (either Monday thru Friday or Monday thru Saturday) or each week.

The 8-event feature allows greater versatility in setting.

4 CANCEL PROGRAM

Timer recording can be cancelled for specific days; up to 14 days within one year can be specified.

5 CAMERA SWITCHING FUNCTION

The BR-9060E is designed for use with a sequential switcher and has a camera select signal output, so that camera switching is synchronized with the time-lapse recording intervals for continuous coverage.

The duration of the camera select signal output is selectable between 1 frame, 2 frames, 25 frames, and 50 frames, and the width of the pulse is 5 msec. This signal is output in the TL, SP, and LP recording modes.

6 TIME/DATE GENERATOR

The date (year, month, day), time (hour, minute, second) and recording mode when the recording was made can be superimposed on the screen.

The position of the display at the bottom right of the screen can be moved for improved visibility.

7 VIDEO MODE SELECTION

The BR-9060E incorporates a Colour/Auto/B & W video mode select switch.

The horizontal resolution is more than 300 lines (B/W mode).

PLAYBACK FUNCTIONS

8 SHUTTLE SEARCH

High-speed search in the forward and reverse directions is possible at 9x normal speed for recordings made in the SP, LP and time-lapse modes. 2x/-1x search is also possible for all recordings.

9 STILL FRAME ADVANCE AND TL MODE PLAYBACK

These playback functions allow you to check any scene slowly and carefully.

10 ALARM SEARCH FUNCTION

A VISS (VHS Index Search System) code is recorded on the control track at the start of alarm recordings: these can be retrieved at high-speed even in the FF/REW mode to review any suspicious activities that triggered an alarm. Thanks to this function, the customers can trace the point of alarm recordings using the consumer model VHS deck which has a VISS capability at his home.

SAFETY FUNCTIONS

11 POWER FAILURE AUTO RESET

If there is a power failure during recording, when the power is restored, recording restarts in the same mode as before the power outage, automatically.

12 NEWLY DEVELOPED HEAD CLEANING MECHANISM

For perfect picture, the heads are cleaned every time the tape is loaded and unloaded and at regular intervals in time-lapse modes.

13 REPEAT FUNCTION

When the tape has been fully recorded, it is rewound and recording restarts from the beginning, to ensure that nothing is missed. A similar function makes playback more convenient.

14 KEY LOCK FUNCTION

By operating the lock key, the function buttons are disabled and mistakes in operation are prevented. The green LED on the front panel will light in key lock mode.

15 5000-HOUR HOUR METER

This helps schedule maintenance.

16 TIME/DATE BACKUP

Even if there is a power failure, the time and date are backed up for about 1 year and do not need to be reset.

17 TAPE-END BUZZER (Three minutes)

When the tape is about to finish, this warns the operator.

18 ALARM/POWER LOSS MEMORY

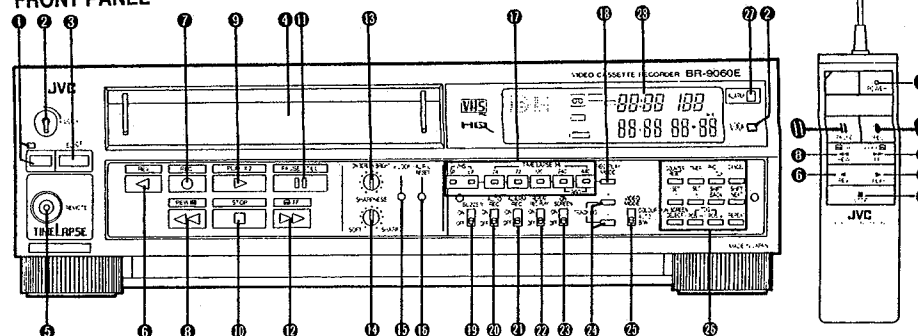
The last alarm and power loss start time (YEAR/MONTH/DAY) will be memorized and indicated in the on-screen display.

19 WIRED REMOTE CONTROL CAPABILITY

20 SERIES RECORDING IN/OUT CONNECTORS

CONTROLS AND CONNECTORS

FRONT PANEL



1 POWER button with LED indicator

Press to turn power on. The indicator will light. Loading a cassette also turns the power on.

2 Key Lock with LED indicator

To lock: Insert the provided key into this key hole and turn it clockwise. The LOCK indicator will light and all buttons and switches except the following will be locked:

Front panel: Buzzer switch, Auto Rec switch, Repeat switch, On-Screen switch, and Video Mode switch.

Rear panel: DIP switch in the compartment, and V-Pulse switch.

To unlock: Insert the provided key into the key hole and turn it counterclockwise. The LOCK indicator will turn off and all the locked buttons and switches will be released.

3 EJECT button

Press to eject the cassette. This button can be pressed in any mode except the Timer mode. The cassette indicator on the FDP (fluorescent display panel) will flash while a cassette is being unloaded and then go out upon completion of unloading.

4 Cassette loading slot

Insert a VHS cassette. The door will close and an indicator showing that a cassette has been loaded will appear on the FDP.

5 REMOTE control terminal (RCA)

The provided remote control unit can be connected to this terminal.

6 REV button

Press in the Play, Still or Search mode to play back a tape backwards.

7 REC button

Press once to start recording; press again for instant timer recording. Each time it is pressed subsequently adds 30 minutes to the recording time, to a maximum of 9 hours. (See pages 9 and 15.) To start recording with the remote control unit, press the REC and PLAY buttons simultaneously. (The REC button of the remote control cannot be used for instant timer recording.)

8 Rewind (REW) button

Press to rewind the tape in the cassette. While the tape is being rewound, the REW indicator on the FDP will light. This button can be pressed in any mode except Record, Eject or Timer. To release the Rewind mode, press the STOP or FF button, depending on which mode you want next. Pressing this button in the Play or Still mode enables high-speed playback at about 9 times normal in the reverse direction. During search, the REW indicator on the FDP will remain lit.

When the ALARM REC switch 2 on the front panel is set to ON, and this button is pressed in the Play or Stop mode, the tape enters the alarm search mode in the reverse direction. If the PLAY button is pressed within 2 seconds after pressing the REW button, the tape will be rewound to its start and playback will start automatically. (During rewind, the PLAY indicator on the FDP will blink.)

9 PLAY/X2 button

Press once to play a tape; press again for double-speed playback. To return to normal playback, press again. Also press this button to cancel the Pause/Still and Search modes. (See pages 10 and 11.)

10 STOP button

To stop the tape. When the STOP button is pressed, the tape is unloaded and the Stop mode is engaged.

11 PAUSE/STILL button

Press to temporarily stop the tape to avoid recording unwanted material or to view a still picture. The picture advances every time this button is pressed.

12 Fast Forward (FF) button

Press to fast forward the tape in the cassette. While the tape is being fast forwarded, the FF indicator on the FDP will light. This button can be pressed in any mode except Record, Eject or Timer. To release the Fast Forward mode, press the PLAY, STOP or REW button, depending on the mode you want next. Pressing this button in the Play or Still mode enables high-speed playback at about 9 times normal, in the forward direction.

When the ALARM REC switch 2 on the front panel is set to ON, and this button is pressed in the Play mode, the tape enters the alarm search mode in the forward direction.

13 ON SCREEN BRIGHT control

When time and date characters are superimposed on the picture, their brightness can be adjusted with this control by using a screwdriver. Turn clockwise for brighter characters and counterclockwise for darker characters.

14 SHARPNESS control

Turn to adjust the video output signal delivered from the VIDEO OUT connector on the rear panel for a sharper or softer picture. Turn clockwise for a sharper picture and counterclockwise for a softer picture. Effective only for the playback picture.

15 V-Lock control

In the Still mode, turn this to eliminate shaking of the picture.

16 AL/PL RESET button

Pressing this resets the Alarm and Power Loss counter.

① REC mode indicators

These indicate the recording time and playback time (when using an E-180 cassette) selected with the REC/PLAY MODE button ⑩.

SP: SP mode
LP: LP mode
24: 24H mode
72: 72H mode
120: 120H mode
240: 240H mode
480: 480H mode
240: (960H mode)
480:)

VHS modes

Time Lapse modes
(Note: The on-screen indication for the 960H mode is 480H.)

⑩ REC/PLAY MODE select button

Select the tape speed in recording or playback
VHS SP : for the VHS SP mode.
VHS LP : for the VHS LP mode.

TL : for time lapse mode
24: for 24-hour mode
72: for 72-hour mode
120: for 120-hour mode
240: for 240-hour mode
480: for 480-hour mode
960: for 960-hour mode

⑪ BUZZER ON/OFF switch

ON: The buzzer beeps 3 minutes before the tape reaches its end.

OFF: No buzzer operation. Also, set to OFF to stop the beeping buzzer.

Note: If the VTR is used for surveillance, this switch should be set to ON.

⑫ AUTO REC switch

ON: Recording restarts automatically when power is restored after a power failure. Also use this position when recording with an external timer.

Note: Effective with cassettes with safety tab in place.
OFF: If the AUTO REC function is not required, be sure to set the switch to OFF, otherwise recordings could be erased by accident.

⑬ ALARM REC switch

ON: To switch to the 3-hour (VHS/SP) recording mode or 6-hour (VHS/LP) recording mode when an alarm signal is input in time lapse recording mode. The recording mode can be set to continue for 15 sec, 3 min, to the tape end, or while alarm pulses are being input. If the FF or REW button is pressed in the Play or Stop mode, the tape enters the alarm search mode.

(The tape then enters the playback mode from the alarm cue point.)

OFF: To continue recording in the same mode with no alarm recording operation.

⑭ REPEAT REC/PLAY switch

ON: When the end of the tape is reached in recording, the tape is rewound and recording restarts automatically from the start. When the end of the tape is reached in playback, the tape is rewound and playback restarts automatically.

OFF: No repeat operation.

⑮ ON SCREEN ON/OFF switch

ON: Time/date information is recorded together with the input signal and is superimposed on the monitor screen.

OFF: No information is recorded or superimposed.

⑯ TRACKING (+/-) buttons

If noise bars can be seen during playback, double-speed playback and slow search, use these buttons to minimize

their effect. Tracking is reset to normal when both buttons are pressed together, a cassette is ejected, or the power plug is disconnected.

⑰ VIDEO MODE select switch

Select one of the three positions according to the input signal during recording or the output signal during playback.

COLOUR: Set to this position when the input or playback video signal is a colour signal.

AUTO: The circuit is automatically switched between colour and black/white, allowing optimum recording and playback. When this position is used with black/white signals, a higher picture resolution can be obtained. Normally set this switch at this position.

B/W: Set to this position when the input or playback signal is a monochrome signal. Higher picture resolution will be obtained.

⑱ TIMER/TDG buttons

● COUNTER RESET button: Press to reset the counter on the FDP to "00 00".

● TIMER button: Press to engage the TIMER standby mode after you have preset the time for unattended recording.

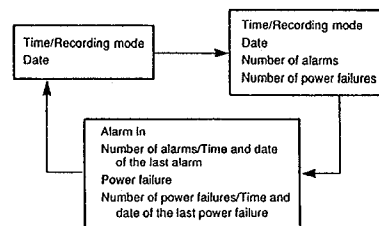
● PROGRAM/CLOCK button: Press to change the display to the timer set mode.

● CANCEL button: Press this button at any time during timer programming to clear the program, or use to engage the cancel program mode.

● SET (+/-) button: Press these to adjust the displayed data when setting the clock and programming the timer.

● SHIFT (NEXT/BACK) buttons: Press these to change displayed figure when setting the clock and programming the timer.

● ON SCREEN SELECT button
Selects the on-screen display mode between the following three.



● TDG Position V/H buttons

Use to shift the position of the superimposed time and date characters in the vertical and horizontal directions. (See page 16.)

H: Horizontal direction

V: Vertical direction

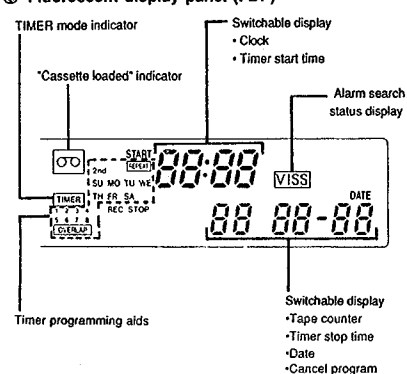
● REPEAT button

Press to repeat programmed timer data weekly.

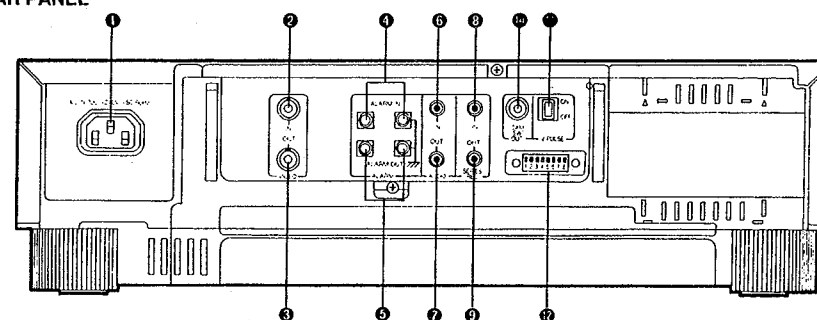
⑲ ALARM indicator

Lights when an alarm recording starts.

⑳ Fluorescent display panel (FDP)



REAR PANEL



① AC Input socket (AC IN 220V-240V)

Connect to a 220V-240V AC, 50/60 Hz power outlet.

② VIDEO IN connector

Input connector for composite video signal.

③ VIDEO OUT connector

Output connector for composite video signal.

④ ALARM INPUT terminal with GND

Accepts alarm signals; minimum pulse width is more than 20 msec.

The terminal uses an input-grounding type contact.

⑤ ALARM OUTPUT terminal with GND

Outputs alarm signal.

⑥ AUDIO IN connector

Input connector for audio signal.

⑦ AUDIO OUT connector

Output connector for audio signal.

⑧ SERIES REC IN terminal

Accepts a signal for series recording. With this input, the BR-9060E is automatically changed from the Stop mode to the Record mode. Connect this terminal to the SERIES REC OUT terminal of the preceding video recorder.

⑨ SERIES REC OUT terminal

Delivers a signal at the end of the tape so that a second time-lapse video recorder can operate for recording in series. Connect this terminal to the SERIES REC IN terminal of the subsequent video recorder.

⑩ CAMERA SW OUT connector

Delivers a command signal for camera switching to a camera sequential switcher.

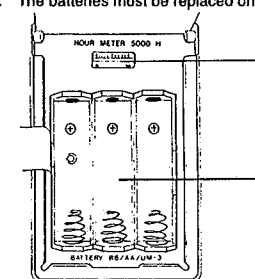
TOP PANEL

① HOUR METER (5,000 hours)

② Battery Holder

For the batteries backing up the time/date generator.

Note: The batteries must be replaced once a year.



Note:

Low active pulse, width: 5 m sec.

① V.PULSE switch

Usually set to OFF. When signals are supplied by non-interlaced cameras, set to ON for reducing vertical dancing of the playback picture on the monitor.

② DIP switch

Remove the cover with a screwdriver.

1.2.3. ALARM REC select switches

1. REC MODE select switches

ON: SP mode

OFF: LP mode

2.3. REC TIME select switches

REC TIME	Alarm period	15 sec.	3 min.	Tape End
SW 2	ON	OFF	ON	OFF
SW 3	ON	ON	OFF	OFF

4.5. CAMERA SWITCHING OUTPUT select switches

Set the camera switching interval using switches No. 4 and 5. Normally set them for 25 or 50 frame mode.

Output timing	1 FRAME	2 FRAME	25 FRAME	50 FRAME
SW 4	ON	ON	OFF	OFF
SW 5	ON	OFF	ON	OFF

6. AUTO REWIND mode select switch

OFF: No AUTO REWIND operation

ON: AUTO REWIND mode

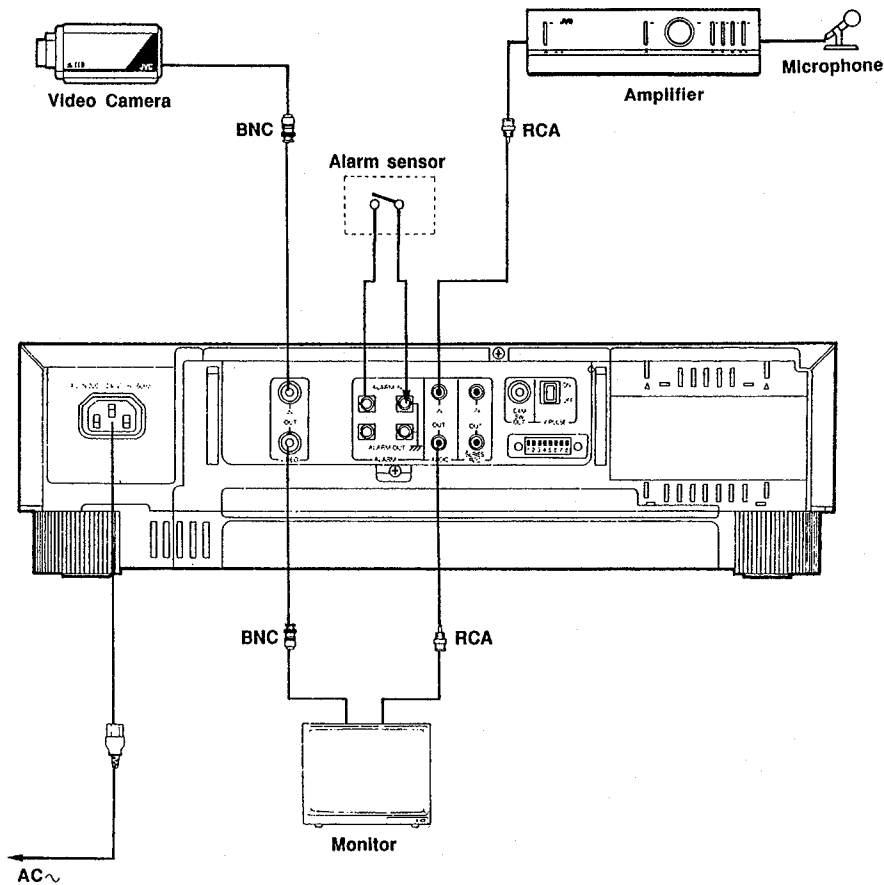
7. 480H/960H time-lapse recording mode select switch

ON: 480 H

OFF: 960H

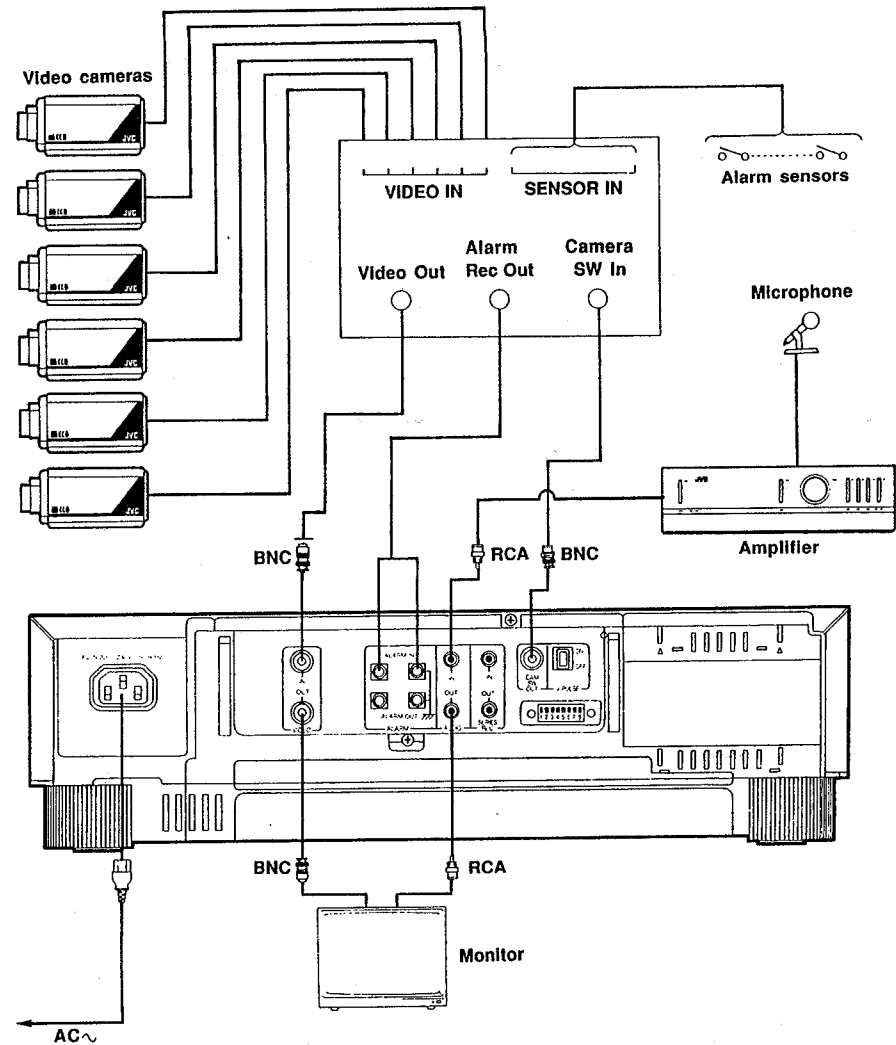
CONNECTIONS

I Connection to a camera with a built-in SSG



- (1) Connect the rear panel VIDEO OUT and AUDIO OUT connectors to a monitor.
- (2) Connect the video output of the camera to the VIDEO IN connector.
- (3) If an audio input is required, connect a microphone to the AUDIO IN connector via an optional amplifier.
- (4) If an alarm sensor is to be used, connect across the ALARM INPUT terminal and GND.
- (5) After completing connection, connect the power supply cord.

II Connection to several cameras using a sequential switcher



- (1) Connect the video cameras and alarm sensor to the sequential switcher.
- (2) Connect switcher's video output, alarm signal output and camera switching signal input to the corresponding terminals of the recorder.
- (3) Connect a monitor to the VIDEO OUT and AUDIO OUT connectors.
- (4) After completing connection, connect the power supply cord.

LOADING AND UNLOADING A VIDEO CASSETTE

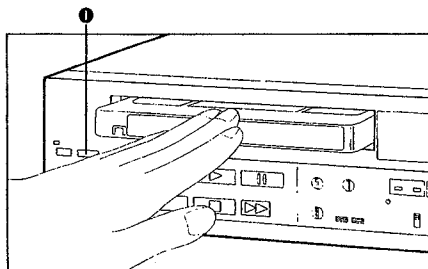
Loading

Insert a cassette as illustrated with its labelled side facing you.

- With a cassette inserted, the **Ⓢ** mark to indicate "cassette inserted" appears on the display panel.

Unloading

Press the EJECT button **①**. The cassette will be ejected.



Motorized loading system

- The cassette can be loaded even when the power has not been turned on. Inserting a cassette into the loading slot turns the power on automatically.

- The cassette can be unloaded even when the power has been turned off. If a cassette is inside, pressing the EJECT button turns the power on automatically and, after ejection of the cassette, shuts it off automatically.

- Inserting a cassette, with its safety tab removed, turns the recorder on and playback of the cassette begins automatically.

Notes:

- Be sure to insert the cassette firmly into the slot; otherwise, it will be automatically rejected.
- The automatic loading mechanism will operate only when the cassette is inserted correctly.

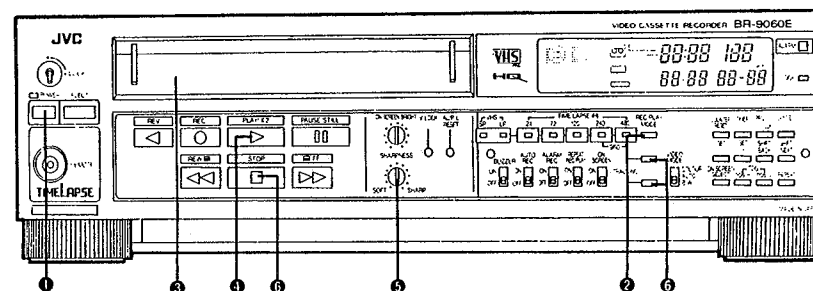
Caution

- If unloading of a cassette is not possible, check to see whether the TIMER indicator is lit. If so, press the TIMER button so the TIMER indicator extinguishes.
- Do not attempt to pull out the cassette once automatic loading has started.

WARNING

- Do not insert fingers or any foreign object beyond the door flap of the cassette loading slot, as this could lead to injury or damage to the mechanism. Show special caution with children.

PLAYBACK



- Press the POWER button on.
- Set the REC/PLAY MODE button as required.
- Insert a pre-recorded cassette into the cassette loading slot.
 - When the cassette loaded has no safety tab, playback starts automatically.

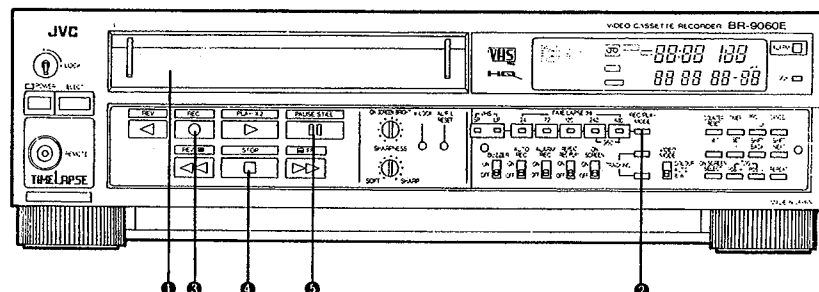
Note:

- Noise bars may appear on the screen if you play back a tape which was recorded using another VTR. In such cases, adjust the TRACKING controls **⑥**. Press one of the buttons

- Press the PLAY/X2 button. The tape will start running and the playback picture will appear on the monitor screen.
- Adjust the picture as required with the SHARPNESS control.
- Press the STOP button to stop playback.

to correct the picture referring to the monitor. After playback, tracking may be reset manually by pressing both buttons simultaneously. It is reset automatically when the tape is ejected or the power cord pulled out.

RECORDING



- Insert a video cassette into the cassette loading slot.
- Set the REC/PLAY MODE button as required.
- Press the REC button to ON. The record mode will be engaged and the REC indicator on the FDP will light.
- Press the STOP button to stop recording.
- RECORD-PAUSE
 - Press the PAUSE/STILL button **⑤** to stop recording temporarily.
 - Press the PLAY/X2 button to restart recording.

Note: If left in the Pause mode for more than about 5-1/2 minutes, the VTR will enter the Stop mode.

- While in the Pause mode, a Record-Pause bar appears at the bottom of the screen and indicates the elapsed time up to 5 minutes 25 seconds by reducing its size.

SPECIAL-EFFECTS PLAYBACK

SHUTTLE SEARCH

When the REW or FF button is pressed in the Stop mode, normal rewind or fast forward takes place. When these buttons are pressed in the Play, or Still mode, the tape runs at about 9 times normal speed in the corresponding direction. The buttons can be locked and the indicator lights.

You can follow the speeded-up picture on the monitor screen.

- For briefer scanning, keep the REW or FF button pressed for more than 2 seconds; when you release the button, the Search mode will be cancelled.

ALARM SEARCH

When the ALARM REC switch on the front panel is set to ON, pressing FF while in the Play or Still mode for less than 2 seconds initiates alarm search in the forward direction and pressing REW for less than 2 seconds initiates alarm search in the reverse direction. When the tape reaches the start of an alarm recording, it enters the playback mode automatically. During alarm search, the "VISS" mark on the FDP will light.

Note:

- If the FF or REW button is pressed in the Stop mode, the tape stops at the start of an alarm recording.

STILL & FRAME ADVANCE

- Press the PAUSE/STILL button in the Play mode, the tape will stop and a still picture will be obtained.
- To advance the still picture, press again.
- To return to the normal Play mode, press the PLAY/X2 button.

Note:

- When the STILL mode continues for longer than about 5 minutes, the STOP mode will be entered automatically.
- Turn the V-LOCK control to eliminate shaking of the picture.

REVERSE PLAYBACK

- Press the REV button in the PLAY mode; the tape will be played back in reverse at normal speed.
- To cancel reverse playback, press the PLAY, STOP, STILL or SEARCH button.

DOUBLE-SPEED PLAYBACK

- Press the PLAY/X2 button in the Play mode; double-speed playback will be engaged.
- To resume normal playback, press the same button again.

NEXT-FUNCTION MEMORY

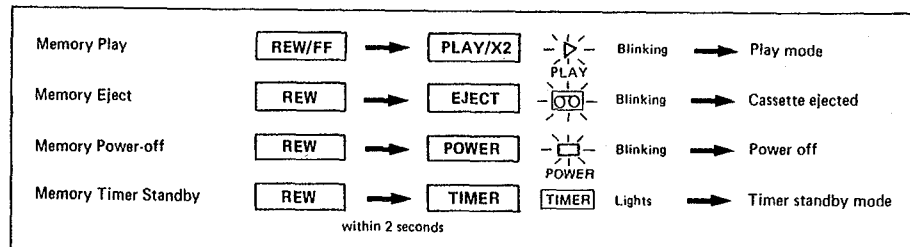
Memory Play function

- If you want to watch the tape from its beginning after rewinding, press the REW button and then PLAY within 2 seconds. Playback will start automatically at the beginning of the tape.
- While the tape is being rewound, the PLAY indicator is blinking. To cancel the Memory Play mode and go to another mode, press the corresponding button (STOP, PLAY, FF, REW, EJECT, Power OFF).

Memory Eject/Power-Off/Timer Standby

If you are going to eject the cassette, turn the power off or engage the Timer Standby mode after rewinding the tape, you don't have to wait for completion of rewind to press the corresponding button.

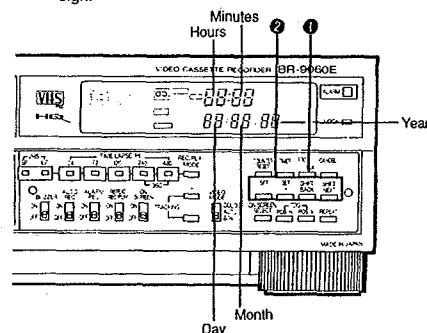
- To eject the cassette after rewind, press REW and then EJECT within 2 seconds. (To cancel the Memory Eject mode, press STOP, PLAY, FF or REW.)
- To turn the power off after rewind, press REW and then POWER within 2 seconds. (To cancel the Memory Power-off mode, press POWER.)
- To engage the Timer Standby mode after rewind, press REW and then TIMER within 2 seconds. (To cancel the Memory Timer Standby mode, press TIMER or Power.)



CLOCK ADJUSTMENT

Plug the recorder into an AC outlet. "SU" and "0:00" will flash on the FDP.

- If left for longer than one minute, this mode is cancelled.
- Press the PRG/CLK button ① to enter the clock adjust mode.
 - Press the SET(+/-) button ② to enter the hours.



- Press the "SHIFT NEXT" button, then the minutes will flash, then press SET(+/-) button ② to enter the minutes.

- Press the "SHIFT NEXT" button, then the day will flash. Press the SET (+/-) button ② to enter the day.
- Press the "SHIFT NEXT" button, then the month will flash. Press the SET (+/-) button to enter the month.
- Press the "SHIFT NEXT" button, then the year will flash. Press the SET (+/-) button to enter the year (last two digits).
- Timekeeping will start when the PRG/CLK button is pressed.

Notes:

- The correct day of the week will be displayed automatically.
- If you want to alter the setting of only one entry, the flashing digits can be changed by pressing the "NEXT" and "BACK" buttons.
- The seconds will be reset to "00" by pressing the SHIFT (NEXT/BACK) or SET (+/-) button in the Clock Adjust mode.
- When re-adjusting the time, pressing the PRG/CLK button repeatedly changes the display mode in the following sequence:

Timer mode → Clock Adjustment mode → Clock mode

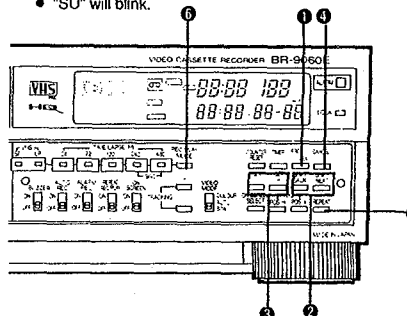
Power failure indicator

The entire clock display may be reset to SU 0:00 and start to flash. This is not a malfunctioning of the clock, but it indicates that the batteries are discharged. Re-adjusting the time with replaced batteries restores the normal condition of the clock display.

PROGRAM TIMER SETTING

To program the timer, the clock must have been set correctly.

- Turn on the power and press the PRG/CLK button ① to set to the Program Timer Set mode.
 - Program number "1" will blink.
 - To advance to programs 2 to 8, press the "SET +" button the required number of times. After program 8 the display will return to the clock mode.
- Verify the program to be set by pressing the SHIFT NEXT button.
 - "SU" will blink.



- Then set the desired data by selecting the item to be set (day, starting time, and stop time) with SET (+/-) buttons ④ and verify the data for each time with the SHIFT (NEXT/BACK) buttons ⑤. The data is also displayed on the monitor screen.
 - To see the on-screen data, supply a composite video signal to the video input connector.
 - To cancel the program, press the CANCEL button ⑥.
 - To repeat this program weekly, press the REPEAT button ⑦.
- To select the recording mode, set the REC/PLAY MODE select button ⑧ on the front panel.
- After one program has been set, to move to the next program, press the SHIFT NEXT button ③.
- When data has been set, press the PRG/CLK button again.

Notes:

- The tens place will also change accordingly when the units place is advanced or reversed by pressing the SET (+/-) button.
- When the SHIFT NEXT button is pressed after the starting time has been set, the same time is displayed for the stop time.

Variety of day setting possibilities

No.	Setting	Setting method	Indication FDP
1	One day of the 1st week (week after week)	SET (+ REPEAT)	00:00 00:00 00:00 00:00 00:00 00:00 00:00
2	One day of the 2nd week (week after week)	SET (+REPEAT)	00:00 00:00 00:00 00:00 00:00 00:00 00:00
3	Daily recording from Sunday through Saturday (week after week)	SET (+ REPEAT)	00:00 00:00 00:00 00:00 00:00 00:00 00:00
4	Daily recording from Monday through Saturday (week after week)	SET (+ REPEAT)	00:00 00:00 00:00 00:00 00:00 00:00 00:00
5	Daily recording from Monday through Friday (week after week)	SET (+ REPEAT)	00:00 00:00 00:00 00:00 00:00 00:00 00:00

- As the SET (+) button is pressed, the indication progresses in sequence from No. 1 to No. 5 of the above settings and then returns to No. 1.

Note:

- The 1st week or 2nd week do not refer to weeks on the calendar; the 1st week refers to the seven-day period from the present day and the 2nd week, to the following seven-day period. These two weeks are counted from the time of setting.

Error Indication

- When the TIMER button is pressed with a cassette loaded and the timer correctly programmed, the TIMER indicator on the display will light with the corresponding preset program number(s) also lighting and the power is turned off.
- When you have preset several programs at a time, confirm that all the preset program numbers light together with the TIMER indicator when the TIMER button is pressed. The program whose number does not light has not been correctly preset. Recheck the programmed data. If two or more programs have overlapping times, the OVER LAP indicator on the FDP will blink rapidly after the TIMER button has been pressed. If no change is made in the programmed data, later programs will begin only after earlier programs are completed.
- If all programs have been wrongly preset, the TIMER indicator will blink for about 10 seconds when the TIMER button is pressed, and then the Timer Standby mode will be cancelled.
- If the TIMER button is pressed when a cassette is not loaded, the TIMER indicator will continue blinking.
- If the TIMER button is pressed when a cassette whose safety tab has been removed is loaded, the "tape loaded" and TIMER indicators will blink and the cassette will be ejected.
- As long as the TIMER button is engaged with the TIMER indicator lit, unloading of a cassette is not possible.
- When the TIMER button is pressed before all programming items have not yet been set, the program number blinks and turns off after 10 seconds. Recheck the programmed data.

- REPEAT indication is available by pressing the REPEAT button at any time in the setting procedure.

Timer operation

- Tape loading starts 20 seconds before the preset start time and the recording start signal is triggered 2 seconds before the preset time so that recording starts exactly at the preset time.
- During timer recording, the number of the program that is presently operating will be blinking.
- If the end of the tape is reached during timer recording, the Auto Rewind mode is engaged and, after rewind to the tape beginning, recording will re-start if the REPEAT REC/PLAY switch is set to ON. (If the REPEAT REC/PLAY switch is set to OFF, the cassette will be ejected.) If the preset time expires during rewind, the power is switched off.
- When the tape is ejected at the tape end during timer recording, replace the cassette and press the REC button; timer recording will continue.
- If a power failure should occur, not only time-keeping stops, but also all the preset data will be cancelled. (A blinking SU 0:00 indicates this after power has been reapplied.) In such case, first correct the time indication and then re-enter the programming data.

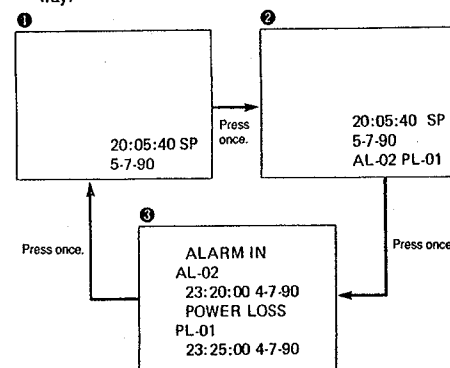
Checking the programmed data

- To do this, press the recorder's PRG/CLK button while in the Timer Standby mode. The FDP will show programmed data for 5 seconds for each program number by automatic switching. You can also check each program by advancing program numbers manually with the SET + button. (If left for more than 60 seconds, this display will be cancelled.) If re-programming is required, disengage the Timer Standby mode and use the regular programming method.

ON-SCREEN DISPLAY

1. Normal display mode

Each time the front panel ON SCREEN SELECT button is pressed, the on-screen display changes in the following way:



- Time/Date generator data to be recorded (hours, minutes, seconds, recording mode, day, month, year)
- Number of alarm inputs and power failures, in addition to 1.
- Under ALARM IN, the number of alarm inputs, and the time/date when the last alarm recording occurred are displayed. Also, under POWER LOSS, the number of power failures and the time/date when the last power failure occurred. Up to 99 can be displayed for both alarm inputs and power failures.

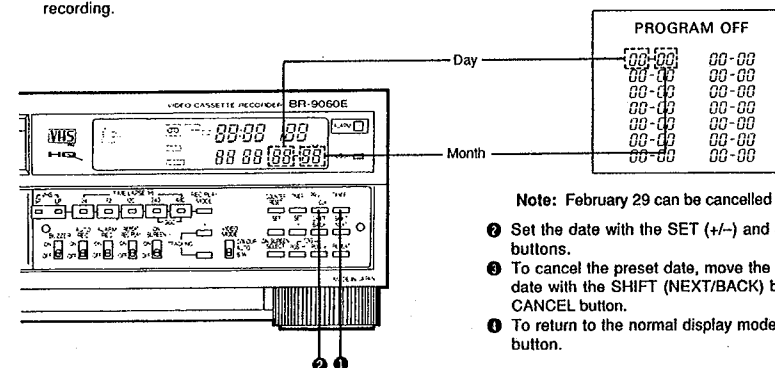
- Press the AL/PL RESET button to clear the numbers.

2. Cancel Program mode

After setting the timer for daily or weekly recording, up to 14 days in a year can be cancelled so that timer recording will not be executed on those days. For instance, 14 consecutive days or 14 Sundays can be omitted from timer recording.

Procedure:

- Press the CANCEL button 1 for longer than 5 seconds and then press the PRG/CLK button 2 within 5 seconds. Then the following on-screen display will appear with day digits blinking.



Note: February 29 can be cancelled only in leap years.

- Set the date with the SET (+/-) and SHIFT (NEXT/BACK) buttons.
- To cancel the preset date, move the cursor to the relevant date with the SHIFT (NEXT/BACK) buttons and press the CANCEL button.
- To return to the normal display mode, press the PRG/CLK button.

INSTANT TIMER RECORDING

After you start recording, the recorder can be set to stop automatically after a certain period of time.

Press REC button while recording (or twice if in the Stop mode).

- The following indication will appear on the display, to show that the recorder is recording in the Instant Timer Recording mode and power will switch off after 30 minutes.



Each time the REC button is pressed, recording time increases by 30 minutes to a maximum of 9 hours. If the REC button is pressed again, the Normal Recording mode will be entered.



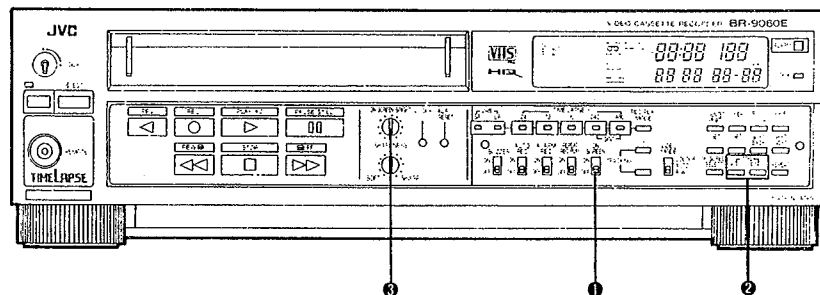
For a more precise time setting, use the SET +/- and SHIFT NEXT/BACK buttons to set to the exact time required.

- After "0:30" has appeared, press to set to the exact time required.
- Press REC button so that the digits stop blinking.

Notes:

- Time setting in this mode is possible up to a maximum of 9 hours 59 minutes if the SHIFT (NEXT/BACK) and SET (+/-) buttons are used.
- While recording is in progress, the displayed time counts down; when 0:00 is reached, the Record mode is released after 10 seconds and the power is switched off.
- If you want to stop recording after having started recording in the Instant Timer Recording mode, press the STOP button.
- If instant timer recording is engaged while the unit is in the Pause mode, the timer will count down normally, but recording will not begin until the PLAY button is pressed.
- When the Instant Timer Record-Pause mode continues for longer than about 5 minutes, the mode is released and the power is switched off.

TIME/DATE GENERATOR



The built-in time/date generator allows the time and date to be superimposed on the video image and recorded.

Set the Clock Time accurately as described on Page 12.

- Set the ON SCREEN switch to ON.
- Move the cursor to the appropriate position on the screen with the TDG "H" and "V" Position buttons. The cursor can be moved to the left in 13 steps by pressing the "H" button. The cursor can be moved up the screen in 16 steps by pressing the "V" button. When the cursor is at the left or top of the screen, the next time the button is pressed, it will return to the right or bottom of the screen.

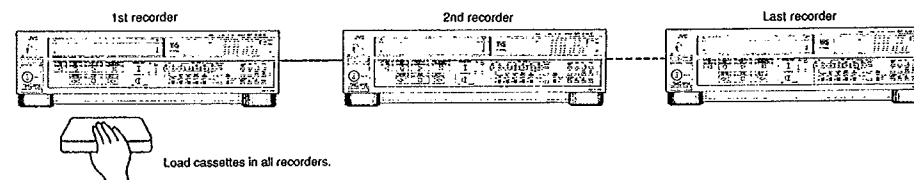
- The brightness of the time/date display can be adjusted using the ON SCREEN BRIGHT control. Turn clockwise for a brighter display and counterclockwise for a darker display.

SERIES RECORDING

Series recording refers to successive recording with more than one recorder, allowing unattended recording for an extended time.

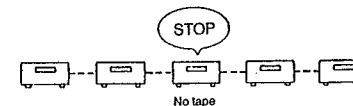
OPERATION

- Load cassettes in the required number of recorders and locate the starting position for each tape.



- Start recording with the first recorder.

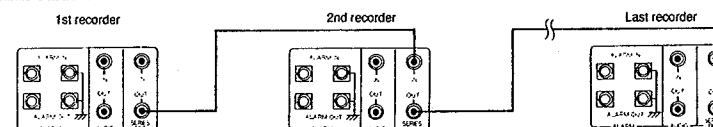
When the tape in the first recorder comes to an end, the second recorder starts recording automatically. Likewise, recording continues to the end of the tape of the last recorder.



Note:

- If a cassette is not loaded in one of the recorders, series recording stops there.

CONNECTION

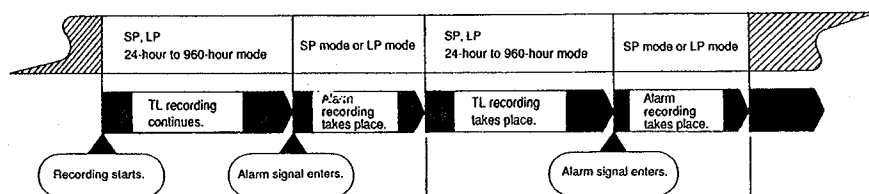


- Connect the SERIES REC OUT terminal ③ of the 1st recorder to the SERIES REC IN terminal ① of the 2nd recorder. Connect the SERIES REC OUT terminal of the 2nd recorder to the SERIES REC IN terminal of the 3rd recorder, and so on.

ALARM RECORDING

When an unusual incident is observed in the scene being recorded in the Time Lapse mode and an alarm is given, the

Recording mode changes automatically to a faster speed for more detailed coverage of the incident.



- An alarm sensor can be connected across the ALARM INPUT and GND terminals.
- Set the REC/PLAY MODE button to TL 24, 72, 120, 240, 480, or 960.
- Set the ALARM REC switch to ON.

SPECIFICATIONS

GENERAL

Recording system	: Luminance — FM Chroma — Down-converted
Signal system	: PAL/CCIR, 625 lines
Tape speed	: 23.39 mm/s (VHS SP) 11.70 mm/s (VHS LP)
Record/Play time	: 3, 6, 24, 72, 120, 240, 480 and 960 hours (with E-180 video cassette)
Operating temperature	: 5°C to 40°C
Operating humidity	: 35 % to 80 %
Storage temperature	: -20°C to 60°C
Power requirement	: 220-240 V AC, 50/60 Hz
Power consumption	: 30 watts
Dimensions	: 435(W) x 124(H) x 370(D) mm

VIDEO

Input	: 0.5 to 2.0 Vp-p, 75 ohms, unbalanced, BNC
Output	: 1.0 Vp-p, 75 ohms, unbalanced, BNC
Horizontal resolution	: Colour-240 lines (VHS SP) B/W-300 lines (VHS SP)
S/N ratio	: More than 43 dB (VHS SP)

AUDIO

Number of tracks	: 1
Input	: -8 dBs, RCA
Output	: -6 dBs, RCA
S/N ratio	: 40 dB (at 3% distortion)

TIME/DATE GENERATOR

Display	: Day, month, year, hours, minutes, seconds, Recording mode
Character size	: 16H
Power backup	: Approx. one year

ALARM

Alarm input	: Ground input
Alarm output	: Alarm input through-out
Camera switching output	: Negative pulse output (approx. 5 ms), BNC

SERIES RECORDING

Series input	: Ground input, RCA
Series output	: Series input through-out, RCA
Accessories	: "R6" batteries x 5 Remote control unit x 1 Switch cover x 1 Lock key x 2

IN CASE OF DIFFICULTY

Symptom	Cause	Remedy
No power is applied to the recorder.	•Power cord is unplugged.	•Plug in the power cord.
Tape control buttons do not function.	•TIMER switch is set to ON.	•Release the key lock and set the TIMER switch to OFF.
Playback picture does not appear while tape is running.	•Monitor is not connected correctly.	•Check the connections.
Noise bars are visible during playback.	•TRACKING control is not correctly adjusted.	•Turn the TRACKING control slowly in either direction to move the noise bars off the screen.
Playback picture is blurred or interrupted.	•Video heads may be dirty.	•Head cleaning is necessary. Consult your nearest JVC dealer.
No audio is available during playback.	•No audio signal is recorded during TL recording.	•Check the mode in which the tape was recorded.
Recording is not possible.	•Safety tab is removed from the cassette.	•Change the cassette to one with safety tab in place.
Timer recording is not possible.	•TIMER indicator is off. •The time/date generator is not correctly preset.	•Press the TIMER switch set to ON. •First set the clock time correctly, then program the timer.